- 38 -

CLAIMS

1.   A method of reducing the feedback caused between the output and the input of an amplification path, comprising the steps of:

5   providing a delay for incorporation in the amplification path;

         introducing into the amplification path a noise signal having an auto-correlation function which is substantially a delta function;

10   correlating the signal before the delay with the noise signal to produce a plurality of correlation coefficients;

         modifying the signal in the amplification path to provide a modified signal, the modification being provided

15   by a transversal filter controlled by the said plurality of correlation coefficients; and

         combining the modified signal with the signal in the amplification path so as to reduce the effect of the feedback.

20   2.   A method according to claim 1, in which after an initial period the correlation step is changed so that correlation is between the signal before being delayed in the delay with the signal after being delayed in the delay.

25   3.   A method of reducing the feedback caused between the output and the input of an amplification path, comprising the steps of:

         providing a delay for incorporation in the amplification path;

passing through the amplification path a signal
having an auto-correlation function which is substantially
a delta function;

correlating the said signal before being delayed in
5   the delay with the signal after being delayed in the delay
to produce a plurality of correlation coefficients;

modifying the signal in the amplification path to
provide a modified signal, the modification being provided
by a transversal filter controlled by the said plurality
10   of correlation coefficients; and

combining the modified signal with the signal in the
amplification path so as to reduce the effect of the
feedback.

4.   A method according to claim 3, in which the steps of
15   correlating and modifying in the transversal filter make
use of a common delay chain.

5.   A method according to claim 1, in which the step of
correlating comprises applying one of the signals to be
correlated to delay means such as to produce a series of
20   delayed signals, multiplying the other of the signals to
be correlated with each of the said one of the signals and
the delayed signals, and smoothing the signals resulting
from the multiplication to provide a degree of integration
thereof.

25   6.   A method according to claim 1, in which the modified
signal is combined with the signal in the amplification
path before the delay.

7. A method according to claim 1, including the step of integrating the correlation coefficients before application thereof to control the transversal filter.

8. A method according to claim 1, in which the amplification path includes a variable-gain amplifier.

9. A method according to claim 8, in which the gain of the variable-gain amplifier is varied in dependence upon the correlation coefficients.

10. A method according to claim 8, in which the gain of the variable-gain amplifier is initially at a relatively low value and is increased as the feedback is reduced by operation of the method.

11. A method according to claim 8, in which the variable-gain amplifier forms part of an automatic gain control system.

12. A method according to claim 1, in which at switch-off the correlation coefficients are stored, and on subsequent switch-on the stored coefficients are used as initial values.

13. A method according to claim 1, in which the delay is a variable delay, and including the steps of reducing the delay from an initial value as the feedback is reduced by operation of the method.

14. A method according to claim 1, including the steps of initially down-converting from radio frequency (RF) to baseband before applying the signal to the delay, and

- 41 -

subsequently up-converting from baseband to radio
frequency, and in which the amplification path,
correlation, modification and combination take place with
signals in complex form.

5   15.   Apparatus for reducing the feedback caused between
the output and input of an amplification path, comprising;
       a delay (60) in the amplification path;
       means (70,62) for introducing into the amplification
path a noise signal having an auto-correlation function
10   which is substantially a delta function;
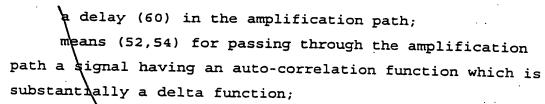   a correlator (72) for correlating the signal before
the delay with the noise signal to produce a plurality of
correlation coefficients;
       a transversal filter (76) receiving the signal in the
15   amplification path and controlled by the correlation
coefficients to provide a modified signal; and
       a combiner (42) for combining the modified signal
with the signal in the amplification path so as to reduce
the effect of the feedback.

20   16.   Apparatus according to claim 15, in which the
apparatus is incorporated in a transceiver for receiving
and re-transmitting radio-frequency signals.

     17.   Apparatus according to claim 16, in which the
transceiver is used in conjunction with at least one
25   broadcast receiver, and the transceiver tuning is
controlled in response to a remote control device which
operates the broadcast receiver.

     18.   Apparatus for reducing the feedback caused between
the output and input of an amplification path, comprising:

- 42 -

a delay (60) in the amplification path;

means (52,54) for passing through the amplification path a signal having an auto-correlation function which is substantially a delta function;

5   a correlator (72) for correlating the said signal before being delayed in the delay with the signal after being delayed in the delay to produce a plurality of correlation coefficients;

        a transversal filter (76) receiving the output signal

10   from the delay and controlled by the correlation coefficients to provide a modified signal; and

        a combiner (42) for combining the modified signal into the signal in the amplification path so as to reduce the effect of the feedback.

15   19.   Apparatus according to claim 18, in which the apparatus is incorporated in a transceiver for receiving and re-transmitting radio-frequency signals.

        20.   Apparatus according to claim 19, in which the transceiver is used in conjunction with at least one

20   broadcast receiver, and the transceiver tuning is controlled in response to a remote control device which operates the broadcast receiver.